

Attorney Docket No. IMMR-039/01US

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of Louis B. ROSENBERG *et al.*

Serial No.: 09/756,617

Examiner: Paul A. Bell

Filed: January 3, 2001

Art Unit: 2675

Confirmation No. 7226

For: **PROVIDING FORCE FEEDBACK TO A USER OF AN INTERFACE DEVICE
BASED ON INTERACTIONS OF A USER-CONTROLLED CURSOR IN A
GRAPHICAL USER INTERFACE**

U.S. Patent and Trademark Office
220 20th Street South
Customer Window, Mail Stop RCE
Crystal Plaza Two, Lobby, Room 1B03
Arlington, VA 22202

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Enclosed is an Information Disclosure Statement and accompanying Form PTO/SB/08A for the above-identified patent application.

- ☒ In accordance with 37 C.F.R. §1.97(b), no additional fee for submission of the IDS is required.
- ☐ In accordance with 37 C.F.R. §1.97(c), also enclosed is:
 - ☐ the fee of \$180.00 as set forth in 37 C.F.R. §1.17(p); or
 - ☐ a statement as specified in 37 C.F.R. §1.97(e).
- ☐ In accordance with 37 C.F.R. §1.97(d), a statement as specified in 37 C.F.R. §1.97(e) and the fee of \$180.00 as set forth in 37 C.F.R. §1.17(p) are also enclosed.
- ☐ Check No. ___ in the amount of \$___ for the total fee is attached.
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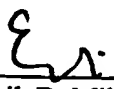
The Commissioner is hereby authorized to charge any appropriate fees under 37 C.F.R.
§§1.16, 1.17, and 1.21 that may be required by this paper, and to credit any overpayment, to
Deposit Account No. 50-1283.

Dated: September 14, 2004

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Respectfully submitted,
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By:



Erik B. Milch
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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**INFORMATION DISCLOSURE STATEMENT
UNDER 37 C.F.R. §1.97(b)**

In accordance with the duty of disclosure set forth in 37 C.F.R. §1.56,
Applicant(s) hereby submits the following information in conformance with 37 C.F.R.
§§1.97 and 1.98.

- ☒ Pursuant to 37 C.F.R. §1.98, a copy of each document cited in the attached Form PTO/SB/08A (1 of 2) is provided on the enclosed CD.
- ☒ No copies of the publications listed on the attached Form PTO/SB/08A (2 of 2) are being provided pursuant to 37 C.F.R. §1.98(d) because the publications were previously cited by or submitted to the Office in prior Application Serial Nos. 08/571,606 (now U.S. Patent No. 6,219,032), and/or 08/566,282 (now U.S. Patent No. 5,734,373) to which the above-identified application claims priority under 35 U.S.C. §120.
- ☐ No copies of any U.S. patents or U.S. patent application publications listed on the attached Form PTO/SB/08A are being provided pursuant to 37

- ☐ Publication(s) ___ listed on the attached Form PTO/SB/08A were cited in a foreign search or examination report corresponding to ___ application serial no. ___ and mailed on ___.
- ☐ Enclosed is a copy of a non-English publication(s) ___. Pursuant to §609 of the M.P.E.P., Applicant submits the attached foreign search or examination report, which cites such non-English language publication(s).

- ☐ Enclosed is a copy of a non-English publication(s) _____. English language publication ____ (copy enclosed) claims priority from this non-English publication.
- ☐ Enclosed is an explanation of non-English publication(s) ____ for which an English translation is not available.
- ☐ Enclosed is an English translation of non-English publication(s) ____ cited in the attached Form PTO/SB/08A.
- ☐ Enclosed is a copy of pending patent Application Serial No. _____.

This Information Disclosure Statement is filed within any one of the following time periods:

- ☐ within three months from the filing date of this national application other than a CPA under 37 C.F.R. § 1.53(d);
- ☐ within three months from the date of entry of the national stage as set forth in 37 C.F.R. §1.491 in this international application;
- ☐ before the mailing date of a first office action on the merits; or
- ☒ before the mailing of a first office action after the filing of a request for continued examination under 37 C.F.R. § 1.114.

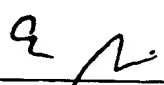
It is respectfully requested that the Examiner consider the above-noted information and return an initialed copy of the attached Form PTO/SB/08A to the undersigned.

Dated: September 14, 2004

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Respectfully submitted,
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(1 of 2)

PTO/SB/08A (10-01)

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STATEMENT BY APPLICANT**

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Sheet 1

of 3

Complete if Known

Application Number	09/756,817
Filing Date	January 3, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A Bell
Attorney Docket Number	IMMR039/01US

U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		6,422,941	7/23/2002	Thomer et al.	
		6,160,489	12/12/2000	Perry et al.	
		6,111,577	8/29/2000	Zilles et al.	
		5,690,582	11/25/1997	Ulrich et al.	
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		5,165,897	11/24/1992	Johnson	
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		4,262,549	4/21/1981	Schwellenbach	
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Examiner Initials ¹	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
		JP	H2-185278		7/19/1990	Taito Corporation	
		JP	H4-8381		1/13/1992	Epoch Co. and Key- Planning Co.	
		JP	H7-24147		1/27/1995	Sega Corporation	
		JP	H5-192449		8/3/1993	Taito Corporation	

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Sheet **2** of **3**

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First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A Bell
Attorney Docket Number	IMMR039/01US

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
		PATRICK, "Design, Construction, and Testing of a Fingertip Tactile Display for Interaction with Virtual and Remote Environments," <i>Master of Science Thesis</i> , MIT, Aug. 1990, archived Nov. 8, 1990.
		CALDER, "Design of A Force-Feedback Touch-Introducing Actuator For Teleoperator Robot Control," <i>Bachelor of Science Thesis</i> , MIT, May 1983, archived June 23, 1983.
		WIKER, "Teletouch Display Development: Phase 1 Report," <i>Technical Report 1230</i> , Naval Ocean Systems Center, San Diego, July 1988.
		BLISS, "Optical-to-Tactile Image Conversion for the Blind," <i>IEEE Transactions on Man-Machine Systems</i> , Vol. MMS-11, No. 1, March 1970.
		JOHNSON, "Shape-Memory Alloy Tactile Feedback Actuator," <i>Armstrong Aerospace Medical Research Laboratory</i> , AAMRL-TR-90-039, August, 1990.
		KONTARINIS et al., "Tactile Display of Vibratory Information in Teleoperation and Virtual Environments," <i>PRESENCE</i> , 4(4):387-402, Harvard Univ., 1995.
		AUKSTAKALNIS et al., "Silicon Mirage: The Art and Science of Virtual Reality," ISBN 0-938151-82-7, pp. 129-180, 1992.
		EBERHARDT et al., "Inducing Dynamic Haptic Perception by The Hand: System Description and Some Results," <i>DSC-Vol. 55-1, Dynamic Systems and Control: Volume 1</i> , ASME 1994.
		GOBEL et al., "Tactile Feedback Applied to Computer Mice," <i>International Journal of Human-Computer Interaction</i> , Vol. 7, No. 1, pp. 1-24, 1995.
		PIMENTEL et al., "Virtual Reality: through the new looking glass," 2 nd Edition: McGraw-Hill, ISBN 0-07-050167-X, pp. 41-202, 1994.
		"Cyberman Technical Specification," <i>Logitech Cyberman SWIFT Supplement to Logitech Mouse Technical Reference and Programming Guide</i> , 4/5/1994.
		OUHYOUNG et al., "The Development of A Low-Cost Force Feedback Joystick and Its Use in the Virtual Reality Environment," <i>Proceedings of the Third Pacific Conference on Computer Graphics and Applications, Pacific Graphics '95</i> , Seoul, Korea, 21-24 August 1995.
		KACZMAREK et al., "Tactile Displays," <i>Virtual Environment Technologies</i> , Chap. 9, pp. 349-414.
		LAKE, "Cyberman from Logitech," at http://www.ibiblio.org/GameBytes/issue21/greviews/cyberman.html , 1994.
		"Component Maintenance Manual With Illustrated Parts List, Coaxial Control Shaker Part No. C-25502," Safe Flight Instrument Corporation, Revised 28 January 2002 (3 pages).

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Art Unit	2675
Examiner Name	Paul A Bell
Attorney Docket Number	IMMR039/01US

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
		"Technical Manual Overhaul Instructions With Parts Breakdown, Coaxial Control Shaker Part No. C-25502," Safe Flight Instrument Corporation, Revised 15 July 1980 (23 pages).
		SCANNELL, "Taking a Joystick Ride," <i>Computer Currents</i> , Boston Edition, Vol. 9, No. 11, November 1994
		YAMAKITA et al., "Tele-Virtual Reality of Dynamic Mechanical Model," <i>Proceedings of the 1992 IEEE/RSJ International Conference on Intelligent Robots and Systems</i> , Raleigh, NC, July 7-10, 1992
		NOLL, "Man-Machine Tactile," <i>SID Journal</i> , July/August 1972 Issue.
		ROSENBERG, "Virtual Fixtures: Perceptual Overlays Enhance Operator Performance in Telepresence Tasks," <i>Ph.D. Dissertation</i> , Stanford University, June 1994.

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		Number Kind Code ² (if known)			
		6,088,019	07/2000	Rosenberg et al.	
		6,078,308	06/2000	Rosenberg et al.	
		6,061,004	05/2000	Rosenberg et al.	
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		5,709,219	01/1998	Chen et al.	
		5,691,747	11/1997	Amano	
		5,668,473	9/1997	Wallace	

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		Number Kind Code ² (if known)			
		5,666,138	09/1997	Culver	
		5,643,087	07/1997	Marcus et al.	
		5,642,469	06/1997	Hannaford et al.	
		5,631,861	05/1997	Kramer	
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		5,625,576	04/1997	Massie et al.	
		5,623,642	04/1997	Katz et al.	
		5,623,582	04/1997	Rosenberg	
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		5,471,571	11/1995	Smith et al.	
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		5,445,166	08/1995	Taylor	
		5,438,640	07/1995	Reeves	
		5,438,638	07/1995	Bolas et al.	

Examiner Signature		Date Considered	
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(2 of 2)

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		5,436,542	07/1995	Petelin et al.	
		5,435,554	07/1995	Lipson	
		5,429,140	07/1995	Burdea et al.	
		5,428,748	08/1995	Davidson et al.	
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		5,402,582	04/1995	Raab	
		5,398,044	03/1995	Hill	
		5,397,323	03/1995	Taylor et al.	
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		5,396,267	03/1995	Bouton	
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		5,251,156	10/1993	Hefer et al.	
		5,251,127	10/1993	Raab	
Examiner Signature			Date Considered		

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² Applicant's unique citation designation number (optional). ³ Kind Codes of U.S. Patent Documents at www.uspto.gov or MPEP 901.04. ⁴ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁵ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁶ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁷ Applicant is to place a check mark here if English language Translation is attached.

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet **4** of **13****Complete If Known**

Application Number	09/756,617
Filing Date	January 3, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A Bell
Attorney Docket Number	IMMR039/01US

U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number Kind Code ² (if known)			
		5,243,266	09/1993	Kasagami et al.	
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Sheet **5** of **13****Complete if Known**

Application Number	09/756,617
Filing Date	January 3, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A Bell
Attorney Docket Number	IMMR039/01US

U.S. PATENT DOCUMENTS

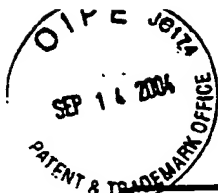
Examiner	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number Kind Code ² (if known)			
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Sheet 6 of 13

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Application Number	09/756,617
Filing Date	January 3, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A Bell
Attorney Docket Number	IMMR039/01US

U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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		2,906,179	09/1959	Bower	

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Sheet **7** of **13**

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Application Number	09/756,617
Filing Date	January 3, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A Bell
Attorney Docket Number	IMMR039/01US

Examiner Initials*	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ²	Number ³	Kind Code ⁴ (if known)			
		EP	0265011	A1	04/1988		
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		JP	4-34610		02/1992		
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		WO	WO9532459		01/0000		
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		WO	WO9622591		07/1996		
		WO	WO9628777		09/1996		
		WO	WO9720305		06/1997		

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Sheet **8** of **13****Complete if Known**

Application Number	09/756,617
Filing Date	January 3, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A Bell
Attorney Docket Number	IMMR039/01US

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
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**INFORMATION DISCLOSURE
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Sheet **9** of **13****Complete If Known**

Application Number	09/756,617
Filing Date	January 3, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A Bell
Attorney Docket Number	IMMR039/01US

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
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Sheet **10** of **13****Complete if Known**

Application Number	09/756,617
Filing Date	January 3, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A Bell
Attorney Docket Number	IMMR039/01US

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
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Sheet **11** of **13****Complete if Known**

Application Number	09/756,617
Filing Date	January 3, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A Bell
Attorney Docket Number	IMMR039/01US

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
		Krueger, Myron W., Artificial Reality 1988, pp. 54-75.
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Sheet **12** of **13****Complete if Known**

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Attorney Docket Number	IMMR039/01US

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		Rosenberg, Louis B., "Perceptual Design of a Birtual Rigid Surface Contact," Center for Design Research Stanford University, Air Force material Command, Apr. 1993, pp.1-41.
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